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REMARKS UPON

# CHIPPED STONE IMPLEMENTS.

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BY  
F. W. PUTNAM.

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From the BULLETIN OF THE ESSEX INSTITUTE, Vol. XV, 1883.

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PRINTED AT THE SALEM PRESS,  
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## REMARKS UPON SOME CHIPPED STONE IMPLEMENTS.

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BY F. W. PUTNAM.

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*(Communicated at the meeting on June 29, 1883.)*

Vice-President PUTNAM addressed the meeting on the subject of "American Archaeology." After a general statement of the importance of studying the works of man in the past, not only in order to obtain an insight into the condition and development of the early races, but also, by comparison, to trace their connections and migrations over the world, he confined his remarks to the method of manufacture, the character and use of chipped stone implements. The subject was illustrated by several photographs and drawings which he brought from the Museum at Cambridge, and by the local collection exhibited to the meeting by Mr. Dodge.

The first cutting implements used by man, to supplement his finger nails and teeth, probably consisted of pieces of stone, broken shells, the teeth of animals and splinters of bone or wood, according to the particular circumstances and surroundings of the individual. While such natural and primitive implements are still in use by the lower savages, and in emergencies are resorted to by us all, the natural wisdom of man, as shown by his great inventive power in his onward march, soon led him to prepare implements better adapted to his purposes. Thus, among the very oldest works of man, of which we have positive knowledge, are the chipped stone imple-

ments found at greater or less depth in the gravel beds of various parts of the world; such as those discovered by Dr. Abbott in the gravel of the Delaware valley at Trenton, N. J., of which figs. 1 and 2 are representations.

Implements such as these were made readily from any kind of stone which fractures with a sharp edge, and they were formed by striking off pieces with another stone which served as a hammer. In each locality the stones which have this essential character soon became known and hence we find that chipped implements made of the several varieties of slate, jasper and quartz are abundant in this vicinity, while in other parts of America flint or chert, obsidian, chalcedony and other kinds of stones were used.

A variety of argillite was the material in common use among the people inhabiting the valley of the Delaware at a time so remote that we are unable, as yet, to express it in years. While we cannot affirm that the rudely-made implements found in the Trenton gravel were fastened to handles, it is probable that they were, as we know that similar implements are furnished with handles by savages probably as low in the scale of humanity as were the ancient men of the glacial epoch. Figures 1 and 2 represent two of the argillite implements from the Trenton gravel.

Fig. 3 is an illustration of a rude stone implement provided with a handle, from Tasmania. The handle is simply a tough twig which has been cut or scraped flat on one side and then bent over the stone; the flat surfaces of the twig coming together below the stone are secured in place by a string and form a rounded handle. A similar method may have been followed in hafting the rude implements found in the gravel.

Another primitive form of cutting implement is shown

in fig. 4. This is from Australia, and was made by fastening sharp fragments or flakes of stone to a stick by means of a tenacious gum. It is a good illustration of the manner in which flint and other flakes may have been mounted for use as saw-like knives by North American tribes. The original of this figure is in the collection of the Peabody Academy of Science, Salem.

Another rude but efficient form of knife is shown in fig. 5. This is simply a large flake of striped gray flint, slightly chipped along two of its edges. It was taken from an Indian grave in southern California, and is described with several others of a similar character in Vol. VII, Report of Lt. Wheeler's survey west of 100th meridian. Fragments of the wooden handle and some of the asphaltum with which it was fastened, are still attached to the base of the stone. Such flint knives without their handles are common, and are often called rude arrowheads or spearpoints, although by most archaeologists they are termed flake-knives or trimmed flakes. A flint knife with its wooden handle is shown in fig. 6. This also was from an Indian grave near Santa Barbara, California. Numerous other specimens of this character have been found in graves in southern California. It is seldom the case that the wooden handle is preserved, although the asphaltum with which the blade was fastened to the handle often remains attached to the stone.

In other regions different substances were used for securing the blade to the handle. Among many interesting objects taken from bundles containing human skeletons,<sup>1</sup> found by Dr. Edward Palmer in the burial caves of Coahuila, Mexico, and now in the Peabody Museum

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<sup>1</sup> See Reports Peabody Museum Arch. and Ethn., Cambridge. Vol. III, p. 233.

at Cambridge, are large, thin and well-chipped points of flint which are fastened to short handles, by means of a tenacious substance probably obtained from the cactus. Representations of seven of these knives from two burial caves are given in figures 7-13, as they form a very interesting addition to our knowledge of at least one of the methods of mounting the large chipped points, and they also show that not all such points were spearheads.

Although large rude implements, like those from the Trenton gravel, were made by simply chipping off pieces so as to leave a rough cutting edge or a point, the delicately flaked knives from the Mexican caves required additional work of a higher character.

The art of making arrowheads and similar objects out of stone is often stated to be one of the lost arts; but this is not the case, since at the present time there are many Indians in this country, who continue to manufacture them, and even work pieces of glass bottles into symmetrical and delicate arrowpoints. The method of making the points has been described several times, by eye-witnesses, and although there is a difference in detail according with the material used and the skill of the workman, the manufacture may be described in general terms as follows:

A piece of that particular kind of stone, which experience has shown to be the best attainable for the purpose, is selected and roughly shaped by striking blows with a hammer-stone. If it is found to chip readily, it is shaped still further by light blows along the edges, each blow striking off a chip. Partly wrapped in a piece of skin, it is then held in the left hand and finished by flaking off little bits. This delicate part of the work is done with a flaking tool made usually of a piece of bone or antler. This



is a few inches long and about half an inch wide, having one end rubbed down to a blunt edge, which may be either straight, pointed or notched. The other end is fastened to a piece of wood so as to give a firm support to the hand. Sometimes this wooden handle is long enough to be held under the arm, thus steadying the implement which is grasped by the right hand. The edge of the flaker is pressed firmly against the edge of the stone, then with a slight rotation of the wrist a small flake is thrown from the edge of the stone. It will be found that, with a little practice, this flaking can be done with considerable rapidity and precision. Some stones flake better after being heated. The numerous forms of chipped implements known as scrapers, drills, knives, spearpoints and arrowheads, which are represented in the collection before us, probably were made by a method similar to this which I describe. Presumably the smaller are arrowheads which were mounted in various ways.

A mounted point, which may have been either a heavy arrow or a javelin, is shown in fig. 14. It was found in an ancient grave near Arica, Peru, by Mr. J. H. Blake. The point is of quartz and is held in the socket by the string which passes over the barb and is wound round the end of the wooden shaft. The other end of the wood is so shaped as to lead to the conclusion that it was set into a shaft like the more slender piece which forms part of the arrow shown in fig. 15. Both specimens were found by Mr. Blake in the same grave. The more delicate quartz point of the latter is set in a hole in the end of a piece of hard wood and held fast by gum or pitch. The thread was wound round the wood simply to keep the piece from splitting. This piece was then set in a hollow reed which formed the long shaft of the arrow. This

method of mounting arrowpoints is common in North America. Figs. 16, 17 and 18 represent arrows made by the Navajo and Pah-Ute Indians. In these the points, which are of chalcedony and obsidian, are fastened in a notch at the end of the wood with pitch and a lashing of sinew. The piece of wood is then set in a hollow reed, as shown in fig. 16*a*; the end of the reed being wound with sinew to prevent its splitting. Another mode of mounting is shown in fig. 19. It is an arrow made by the natives of Tierra del Fuego. The point is chipped from a piece of bottle glass, and is fastened directly in a slot at the end of the wooden shaft by binding firmly with a sinew without the aid of any pitch or gum.

FIG. 1.

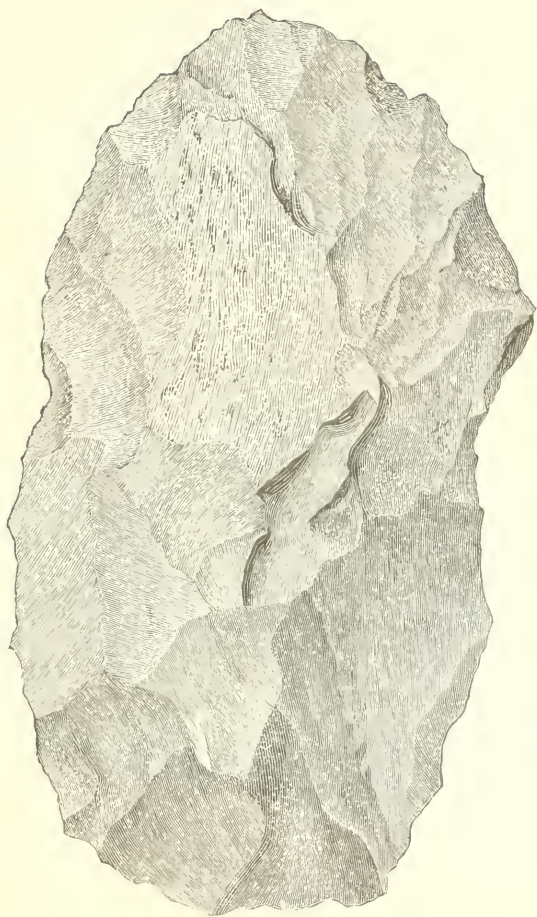


FIG. 1. IMPLEMENT OF ARGILLITE FROM THE TRENTON GRAVEL.  $\frac{1}{4}$



FIG. 2.

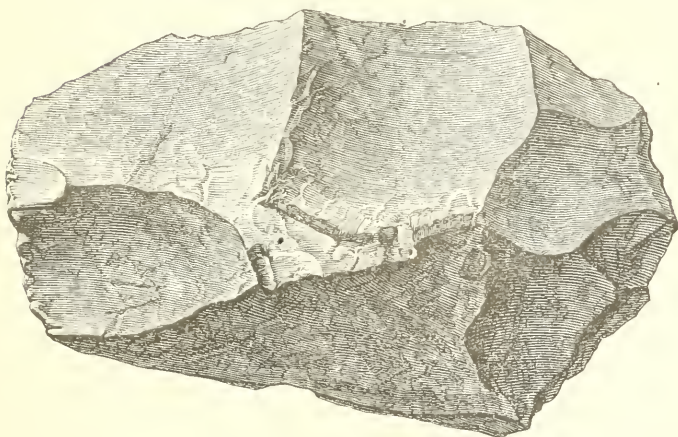
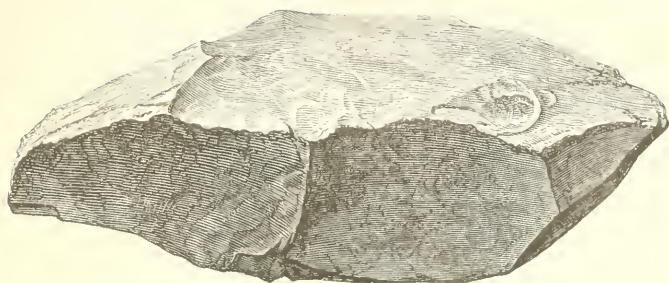


FIG. 2. TWO VIEWS OF AN IMPLEMENT OF ARGILLITE FROM THE TRENTON  
GRAVEL.  
1



FIG. 3.

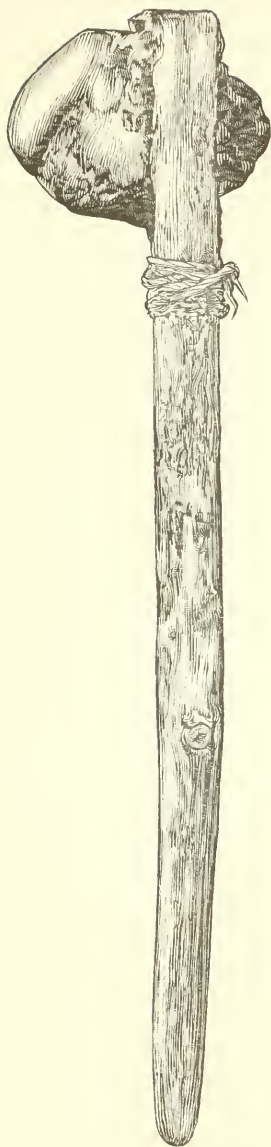


FIG. 4.



FIG. 3. RUDE STONE AXE IN A WOODEN HANDLE.  $\frac{1}{2}$  FROM TASMANIA.

FIG. 4. STONE CHIPS FASTENED BY GUM TO A WOODEN HANDLE.  $\frac{1}{2}$   
FROM AUSTRALIA.





FIG. 5.



FIG. 6.

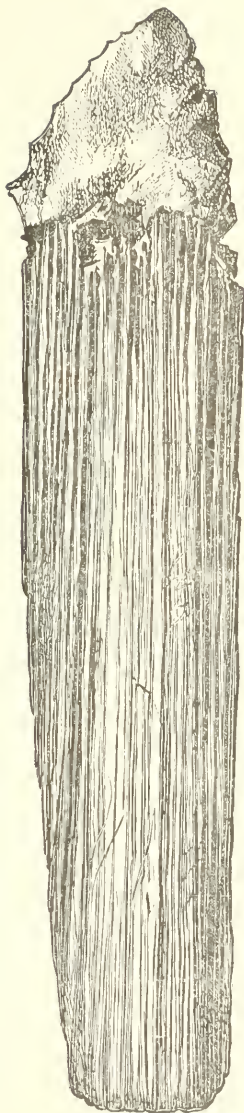


FIG. 5. FLAKE KNIFE WITH REMAINS OF WOODEN HANDLE.  $\frac{1}{1}$   
FIG. 6. RUDELY CHIPPED STONE KNIFE IN WOODEN HANDLE.  $\frac{1}{1}$   
FROM GRAVES NEAR SANTA BARBARA, CALIFORNIA.



FIG. 7.

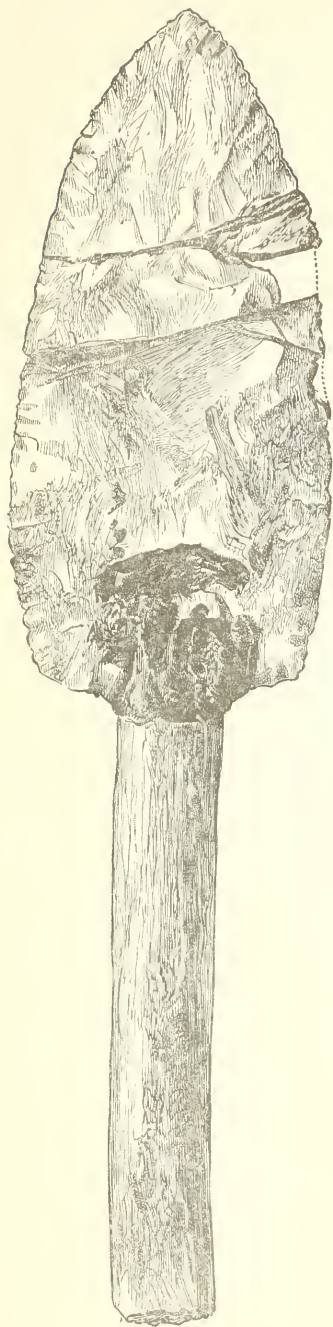


FIG. 8.



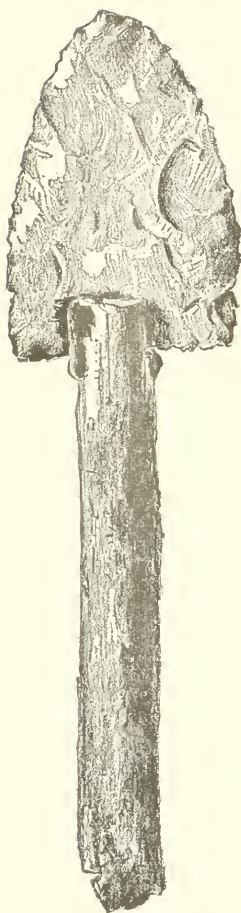
FIGS. 7, 8. FLINT KNIVES IN WOODEN HANDLES.  $\frac{1}{2}$   
FROM BURIAL CAVE IN COAHUILA, MEXICO.



FIG. 9.



FIG. 10.



FIGS. 9, 10. FLINT KNIVES IN WOODEN HANDLES.  $\frac{1}{2}$   
FROM BURIAL CAVE IN COAHUILA, MEXICO.



FIG. 11.

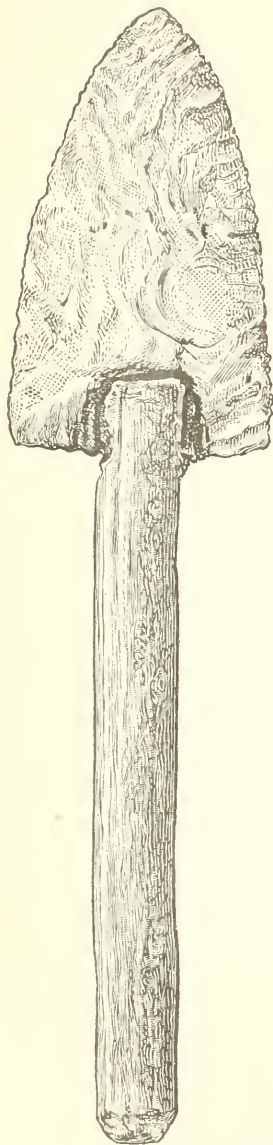
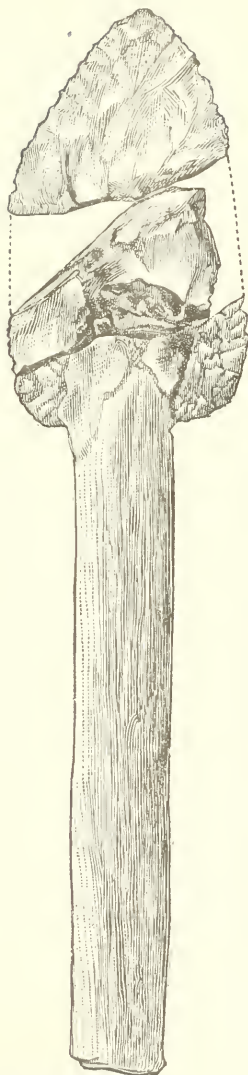


FIG. 12.



FIGS. 11, 12. FLINT KNIVES IN WOODEN HANDLES.  $\frac{1}{2}$   
FROM BURIAL CAVES IN COAHUILA, MEXICO.







FIG. 13.

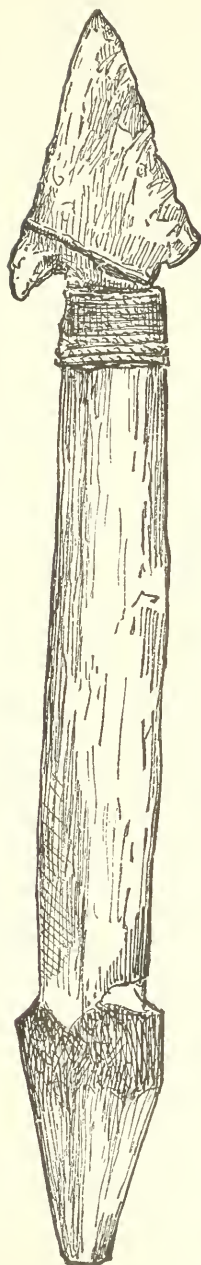


FIG. 14.



FIG. 15.

FIG. 13. FLINT KNIFE IN WOODEN HANDLE.  $\frac{1}{2}$  FROM CAVE IN COAHUILA, MEX.  
 FIG. 14. QUARTZ POINT IN WOODEN SOCKET.  $\frac{1}{1}$  FROM GRAVE IN ARICA, PERU.  
 FIG. 15. ARROW POINT WITH SHAFT OF WOOD AND REED.  $\frac{1}{3}$  FROM GRAVE IN  
 ARICA, PERU.



FIG. 16a.



FIG. 16.



FIG. 17.



FIG. 18.



FIG. 19.



FIGS. 16-18. NAVAJO AND PAI-UTE ARROWS.  $\frac{1}{1}$  16a, SHOWS JOINING OF THE WOODEN PORTION OF SHAFT WITH THE REED.  
FIG. 19. ARROW FROM TIERRA DEL FUEGO.  $\frac{1}{1}$





